



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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In Reply Refer To:

81330-2010-I-0013

September 5, 2012

Ms. Sharon Heywood
Forest Supervisor, Shasta Trinity National Forest
3644 Avtec Parkway
Redding, California 96002

Subject: Request for Informal Consultation on the Trinity Alps Wilderness
Prescribed Fire Project

Dear Ms. Heywood:

This responds to your letter dated July 30, 2012, received in this office on August 6, 2012, requesting concurrence with the determination that the proposed Trinity Alps Wilderness Prescribed Fire Project (Project), may affect, but is not likely to adversely affect northern spotted owls (*Strix occidentalis caurina*) (NSO) and proposed revised NSO Critical Habitat. The Project is outside 2008 designated NSO Critical Habitat and the range of marbled murrelets (*Brachyramphus marmoratus*) and therefore will have no effect on designated NSO Critical Habitat or marbled murrelets. Tidewater gobies (*Eucyclogobius newberryi*), Lost River suckers (*Deltistes luxatus*), short nose suckers (*Chasmistes brevirostris*), vernal pool fairy shrimp (*Branchinecta lynchi*), and their proposed or designated Critical Habitat do not occur in the Project area. Additionally, streams within the Project area do not contribute to habitat for the above listed aquatic species; therefore, the project will have no effect on those species or their proposed or designated Critical Habitat.

This informal consultation is based on the proposed Alternative 3, as described in the July 2, 2012, Biological Assessment (BA), Project documentation (USDA 2010), Level 1 Team discussions, and other data and information in our files pertaining to NSOs and prescribed fire. Additionally, our review and analysis considers information in the 2008 Revised Critical Habitat Rule (USFWS 2008), 2011 Revised Recovery Plan for the Northern Spotted Owl (USFWS 2011), 2012 Proposed Revised Critical Habitat Rule (USFWS 2012), and includes additional sources of information on spotted owl habitat associations, evaluation approaches, and the role of active forest management in the Klamath Ecological Province. The Project overlaps with 2012 proposed revised Critical Habitat. The Shasta Trinity National Forest (Forest) is currently developing a process with the Yreka Fish and Wildlife Service field office that will consider effects of actions not yet completed on proposed critical habitat; consultation will be completed upon final designation. If wilderness areas are included in the final designation of critical habitat,

the Forest will analyze the project's potential impacts to designated critical habitat at that time.

Project Overview

Alternative 3 proposes to prescribe burn approximately 19,088 acres, with an expected average of about 1,500 acres per year (ranging from 1,000-2,500 acres) over a ten year period beginning in the fall of 2012. The Project is located in the Upper New River, Eagle Creek, and Sixmile Creek 6th field watersheds within the Trinity Alps Wilderness area of the Shasta Trinity National Forest. Five main treatment units have been identified based on occurrence of strategic ridgelines and trail networks that will allow for ignition and implementation of prescribed fire and future suppression actions. Further information on the Project description, location, and purpose and need is addressed on pages 3-8 of the BA.

Based on information within the BA and Project file, the overall landscape strategy and design of the preferred alternative were developed to decrease surface and ladder fuels in strategic locations, such as major ridgelines, and to maximize diverse and resilient forest ecosystems by trending the treated areas toward the desired conditions. Results of the prescribed burning would allow natural fires to burn with less intensity and would more likely represent fire's historical role in the wilderness ecosystem (USDA 2010). Treatments are intended to result in forested conditions that will have a higher likelihood of resilience to effects of natural fires thereby supporting the persistence of late-successional and old-growth forest habitats within the landscape.

Project Effects Analysis Overview

The information contained within the BA, in combination with other information and Service staff expertise, forms the basis for our independent evaluation of the Forest's determination that the Project may affect, but is not likely to adversely affect NSO. We have assessed the potential effects of proposed project activities which include the implementation of project-specific temporal and/or spatial project design features (PDFs) that minimize or avoid significant effects from disturbance or direct effects to NSO or ensure retention of NSO habitat elements. Additional PDF's specifically implementing wilderness management guidelines would further minimize the potential of project effects to important elements of NSO habitat.

Effects to owls are being analyzed for ease and consistency purposes as being represented by the 1.3 mile home range and 0.5 mile core use area circles. However, size and shape of annual home range may vary depending on the degree of fragmentation and amount of available habitat (Carey et al.1992; Zabel et al.1995). Actual owl use of the landscape can best be accounted for by considering abiotic factors such as aspect, position on slope, and distance to streams (Irwin et al. 2007, 2011). More importantly, this project area has not been surveyed so current locations are not known; therefore, this analysis evaluates effects to known (historical) activity centers and the suitable habitat where NSOs would most likely reside.

Relatively few studies have evaluated direct responses of spotted owls to modification of their habitat from prescribed fire, though published literature has documented NSO use of habitat burned at mixed severities within their home ranges (Bond et al., 2009, Clark et al., 2011, Roberts et al., 2011). Long-term NSO response from this type of action is uncertain so we are evaluating effects to NSOs based on projected degree of change due to treatment of NSO habitat relative to NSO habitat associations and patterns of habitat use.

The NSO habitat effects analysis contained within this correspondence uses the terms *degrade, maintain, and/or improve* to describe when treatments influence the quality of NSO habitat. The term *degrade* is used when the removal or reduction of habitat elements (e.g. canopy cover, large trees, and stand complexity) occurs but *not to the degree where existing habitat function is changed*. Actions that *maintain or improve* habitats are those that may modify habitat, but due to PDFs will not result in measurable change to habitat or are expected to have contemporaneous beneficial effects.

Specific to NSO and their habitats, proposed treatment types in nesting/roosting or foraging habitat in the Project are expected to degrade (for the short term <5 years), maintain, or improve or habitat elements important for NSOs and their prey through the implementation of specific PDFs that will minimize direct or indirect effects. These include:

- A Project-wide seasonal restriction from February 1 through September 15. With this, potential sources of disturbance during the critical breeding period will be avoided and the direct mortality, harm, failed breeding attempts or displacement of individuals are not expected;
- New roads or dozer lines will not be constructed, avoiding the removal of individual habitat elements or degradation of habitat quality;
- Fire will not be ignited within riparian reserves or within forested habitats in lower slope positions. This will minimize or avoid effects to individual NSOs or the habitat that is highly associated with NSO use;
- No more than 50 percent of suitable nesting, roosting or foraging habitat would be treated in a single year in any one 7th-field watershed up to 3,500 acres in size. This measure, combined with the mosaic pattern of the prescribed fire, will minimize potential changes (in time and space) to suitable NSO habitat and NSO prey habitat across the treatment area;
- Prescribed fire would be designed to retain downed logs of the largest diameter available at an average of 15-35 tons per acre where that amount exists, and to retain snags at an average of 2.5-4 snags per acre. This measure ensures minimal effects to important prey habitat components associated with NSO.

Effects to NSOs

Within the analysis area, nine pairs of NSO were known to occur between the 1980s and early 1990s. Since that time, within those known NSO home ranges wildfires have burned with varying intensity. The responses of these NSOs to past fires and the current occupancy status of these NSO activity centers are unknown. Prescribed fire is proposed within 0.5 mile of five of the nine historical activity centers, and within 1.3 miles of eight of the nine activity centers.

Direct effects to individuals most likely occur as a result of disturbance (primarily disruption to feeding or reproductive behavior) or the direct loss of habitat or modification of habitat components. This project avoids direct disturbance effects during the nesting season through the limitation of burning after the crucial portion of the nesting season (after September 15 and before February 1). Disturbance to feeding activities and loss or modification of habitat attributes are minimized through the temporal and spatial distribution of the action (described below).

Effects to NSO Habitat

Scientific Basis for Analysis

The vegetative diversity found in the dry forest systems found in the Klamath Ecological Province is strongly influenced by the natural fire regime (see synopsis of dry forest disturbance regimes in USDI 2011). Most wildlife species associated with these habitats have evolved with, and depend on, fire-generated features and conditions at the stand and landscape scale. In dry forest ecosystems, use of prescribed fire allows fire to perform its ecological role of introducing and maintaining landscape diversity (DellaSala et al. 2004, Reinhart et al. 2008, Odion et al. 2010). Studies have shown prescribed fire treatments that reduce surface fuels and retain large trees of resistant species are all effective in creating a more fire resilient forest (Agee and Skinner 2005) and that these treatments can be considered a restoration tool to reintroduce a disturbance process to landscapes that historically experienced fire (Knapp et al. 2009). Prescribed fire can also be used as an effective tool in reducing potential fire severity under severe fire weather conditions (Stephens et al. 2009). These treatments have potential to mimic natural processes by restoring, enhancing, or protecting important features of spotted owl habitat such as understory diversity, horizontal heterogeneity, mast-producing hardwoods, and forest openings.

Despite the abundance of published studies examining short term (<5 years) response of low and high intensity fires, there are still limitations in our knowledge of long term responses of ecosystems to prescribed fire. Short-term responses of small mammals are highly dependent on year of effect, pre-fire vegetation condition, fire extent, and intensity (Monroe and Converse 2006, Kennedy and Fontaine 2009). Understory vegetation responses to fire are dependent on variables such as individual species responses, time of year of burn, existing fuel conditions and soil moisture, and existing seed banks (Knapp et al. 2009). In mixed conifer habitats, similar to those found in the project area, these authors found that understory vegetation was resilient to low intensity prescribed fire in the fall when most plants were dormant. Additionally, the majority of plants in forested vegetation types in these systems are perennial and the loss of any given season's growing structures appear to have limited effects over the long term.

Other recent evaluations and meta-analyses of fuels treatments including prescribed fire in areas experiencing low-moderate intensity fire regimes have variable results in fuels reduction effectiveness. Short-term fuel reduction objectives seeking more resilient stands are described as generally successful (Fontaine and Kennedy 2012, Stephens et al. 2012). Other studies have found that prescribed fire-only treatments can result in short-term fuel reductions but will increase fuel loading later in time by the increased number of fire generated snags that ultimately fall and contribute to ground fuels (Skinner 2005, Stephens and Moghaddas 2005). In conclusion, findings suggest while there are variable short-term effects of treatments or minor changes to forest stand conditions from low intensity fires, habitat for small mammals is still available and small mammal populations exhibit either positive or neutral responses from such treatments.

Project Specific Effects

For the purposes of this project, direct and indirect effects are evaluated within the “action area”, defined as the area encompassing a 1.3 mile area around the treatment units. This area consists of approximately 88,100 acres, including 26,730 acres of nesting/roosting habitat and 15,840 acres of foraging habitat; the remainder is considered as unsuitable or dispersal habitat. Treatments are will be distributed across the project area and over a ten-year period. Treatments are proposed within about 5,620 acres of nesting/roosting (NR) (about 20 percent of NR within analysis area), and 3,250 acres of foraging (F) habitat (also about 20 percent of F habitat within analysis area). Approximately 10,200 acres are considered as unsuitable or dispersal habitat. Based on information within the BA, the proposed treatments will affect 1-20% of the nesting/roosting habitat and 2-9% of the foraging habitat in treated 7th field watersheds; no more than 50% of that suitable habitat will be treated in any one year. Photos of the key ridgelines to be used for ignition indicate that the majority of the area is not suitable NSO habitat.

Patches of high intensity fire may occur within the treatment units resulting in burning of individual tree crowns or small groups of small diameter trees. However, the Project prescriptions are intended to result in a mosaic of burned and unburned areas. The potential for small-scale reductions of canopy cover or individual habitat features is expected to be a minor proportion of the treated areas (USDA 2010) and to be within the range of variability historically found in mixed conifer habitats within the Klamath Mountains (as summarized in Frost and Sweeney 2000, Skinner 1995). The Project is also designed to retain large trees and down wood, so the primary effects to NSO habitat and NSO prey habitat will occur in the understory vegetation. Large trees and mature forests associated with flying squirrels, a primary prey species of the NSO, are not expected to be affected by the proposed Project. The low-severity burns will modify or remove individual habitat components or will change the distribution of the understory components, thereby “degrading” habitat, but the degree of change at the stand and landscape level will not alter the function of habitat or preclude the owl use of the habitat.

Understanding NSO use of landscapes is an important consideration when evaluating potential effects. The topographical location (ridge tops) of prescribed fire ignition are in areas of lower likelihood of use by nesting and foraging NSOs (Irwin et al., 2007, 2011), further limiting the effects of prescribed fire treatments to NSO or their prey. Where fire

will occur in habitats more likely to be used by NSOs (such as along watercourses), the variable nature of the prescribed fire will result in a mosaic of burned and unburned areas, thereby promoting ecological diversity within the treatment area. In addition, fuel breaks on ridges are designed to reduce the potential of wildfire spreading into adjacent watersheds and areas of suitable NSO habitat by providing areas to implement effective fire suppression activities over the long-term. We expect long-term beneficial effects if high value NSO habitat can be protected during fire suppression activities.

In conclusion, the effects to NSO habitats are minimized by the heterogeneous nature and location of the prescribed fire treatments. The spatial and temporal distribution of treatments being dispersed over a ten year period is unlikely to negatively influence the NSOs' ability to utilize or occupy the habitat within the Project area. Effects to NSO habitat will be further minimized because the suitable nesting/roosting, foraging or dispersal habitat that will be treated will not be downgraded or removed. Effects are not anticipated to change the current habitat conditions allowing these watersheds to support NSOs or significantly affect NSOs ability to utilize habitat at the stand level. Given the variability in vegetation and prey response, NSOs (if present) are expected to resume or increase use of the underburned areas following treatment. The overall ecological benefits associated with low intensity underburning and effects of reducing fuel continuity are expected to degrade individual habitat features but maintain/improve habitat for NSO in the project area and result in long-term benefits to NSO.

Revised NSO Recovery Plan

The 2011 Revised Recovery Plan for the Northern Spotted Owl emphasizes active management of dry forests in the Klamath and eastern Cascades Provinces to restore ecosystem function, resilience to disturbances, and conservation of spotted owl habitat (USDA FWS 2011). Mosaics of forest and other vegetation patches with variable sizes, composition, stand density, vegetation type, and fuel levels are anticipated to provide resistance and variability of resistance to wildfire and other disturbances, thereby reinforcing similar patch size distributions in the future (Spies et al. 2006). In conclusion, the prescribed low intensity fires are expected to promote and retain the habitat complexity associated with high value habitat and promote the resiliency of the landscape in the event of natural fires.

Conclusion

The Service concurs with your determination that the Trinity Alps Wilderness Prescribed Fire Project may affect, but is not likely to adversely affect the NSO, will result in the long-term beneficial effects to the NSO, and will not affect designated Critical Habitat for the following reasons:

- 1) The Project will not result in removal or downgrade of nesting, roosting or foraging habitat for NSOs;
- 2) The Project will mimic ecological processes associated with the Klamath Physiographic Province that will result in maintaining and improving habitat for NSO;

- 3) The mosaic patterns of low-severity burns will modify individual habitat components thereby "degrading" habitat at the fine scale and in the short-term, but the degree of change at the stand and landscape level will not alter the function of habitat or preclude owl use of the habitat;
- 4) The Project does not occur within designated Critical Habitat;
- 5) Treatments have been designed specifically to minimize effects to the natural environment within a wilderness area;
- 6) Treatments will not affect a significant proportion of suitable habitat in any one given year;
- 7) Direct injury or disturbance of normal breeding activities of NSOs and significant habitat modification will be avoided through the incorporation of PDFs;
- 8) Effects to NSO prey species will occur spatially and temporarily in a manner that will have insignificant or discountable affects to NSOs.

Unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Endangered Species Act of 1973, as amended, is necessary. For more information regarding this response, please contact Jan Johnson, Fish and Wildlife Biologist, at 530-842-5763 or by email at jan_johnson@fws.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Erin Williams".

Erin Williams
Field Supervisor

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